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ABSTRACT

This paper examines the training and education of information manpower in the formal educational institutions of Latin America, Africa, and the Middle East. The nature of the information, social, and economic infrastructures in developing countries is also examined. It is suggested that promotion of the supply side of the information infrastructure does not constitute in itself a necessary and sufficient condition for the use of information and the proper utilization of technology. Shortcomings in educational programs for information manpower are identified as the organizational structure of library and information science schools, the well-defined lines between disciplines, the scattering of the information curriculum in different disciplines, the shortage of qualified faculty, methods of teaching, the problem of language proficiency, and the absence of a systems approach methodology. Eight recommendations are then presented for improving the educational level of information specialists in order to convey the maximum social benefits to developing countries. A 25-item bibliography is included.
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THE DEVELOPMENT OF INFORMATION MANPOWER RESOURCE

by

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The Development of Information Manpower Resource

The major objective of this paper is to emphasize that promotion of the supply side of the information infrastructure in developing countries does not constitute in itself a necessary and sufficient condition for the use of information and the proper utilization of the technology. The paper examines the shortcomings in information manpower education and the factors responsible for these shortcomings are identified. Some, such as the organizational structure of library and information science schools, are due to the education system itself; others, such as the absence of qualified teachers, are inherent in the library and information programs. The last part of the paper makes recommendations for improving the education level of information specialists. The underlying assumption is to convey the maximum social benefits to developing countries.

Introduction

The main objective of this paper is to examine the training and education of the information manpower in developing countries. This study is confined to the training currently taking place in the formal educational institutions of Latin American, African, and Middle Eastern countries. Since the study is not intended to be comprehensive, the generality of the findings presented in this paper should be cautioned. The articles surveyed clearly indicate that training programs in many developing countries share several common factors.

This paper studies the nature of the information infrastructure and compares it to the economic and social infrastructure in developing countries with the intention of shedding some light into the role played by the information manpower. The current aspects of library and information science education programs are then examined in order to identify the factors responsible for their shortcomings. The paper concludes by making recommendations for improving and upgrading the educational level of the information manpower.

The Nature of the Information Infrastructure

Economic development in nations requires that the direct productive activities be supported by an extensive social and economic infrastructure. The establishment of a means of transportation, the construction of education facilities, and the supply of water and electricity are just a few examples of this infrastructure.

The contribution of individuals who participate in their nations economic and social infrastructure development is well recognized by their governments. As a result, the manpower planning of many developing countries places a great deal of emphasis on the education and training of their engineers, physicians, administrators, etc. The question that comes to mind is how does an information infrastructure fit into this setting? Should we consider it as just one of the components of the economic and social infrastructure? Certainly, they have the same objective in that they lead eventually to economic growth. However, it is essential for the time being to distinguish between both infrastructures in order to better understand the nature of the information infrastructure and the role played by the information manpower.

Whereas the provision of the economic and social infrastructure creates to a certain extent its own demand, the presence of information services is not a guarantee that they will be utilized. Under normal conditions, people will use the roads, take the train, switch to electric power and immunize their children. The benefits derived from these services are clear and obvious. Unfortunately, the benefits of information services are difficult to comprehend since the value of information is not obvious. In decision making, the outcome of decisions is not necessarily associated with the search for information.

Thus in contrast to the economic and social infrastructure, the supply of the information infrastructure does not create its own demand. The demand for information services has to be promoted, users have to become aware of the value of information, and their needs have to be understood and clarified. Saracevic (19) observes that in Latin American countries potential users of library service, including those with academic education are unaware of these services. Therefore in order for the information system to produce a product is one achievement but to develop "a lively group of users"¹ requires a different approach for this same system. The role of the information manpower is not only to act as the interface

between the supply and demand side of the information infrastructure but also to promote its demand side. This role may thus be perceived in terms of a whole range of activities, that may take the form of facilitating access to information resources, evaluating information technologies to ensure appropriate application, designing outreach programs, establishing networks, and solving the information problems of managers and researchers.

Allocation of Resources Within the Information Infrastructure

In establishing their information infrastructure, developing countries, in general, tend to invest more in physical and technical resources than in the development of information specialists. This situation is particularly true for the wealthy countries. For example, in Saudi Arabia, the construction and expansion of library facilities are proceeding at a very fast pace (23). A similar situation exists in many developing countries with respect to the information technologies that are frequently underutilized. Meherik (14) reports that in Libya a minimum of 30 public libraries are to be constructed annually. The El Fatah University in Tripoli has ten department libraries, three of which are housed in the same building. All libraries are run by nonprofessionals except for some foreign librarians.

One can not deny that the establishment of library and information center facilities is important. However, it is essential for developing countries that build libraries and information centers to also be aware of the necessary interaction between an information manpower and these facilities. This paper is advocating the idea that the promotion of the supply side of an information infrastructure does not constitute in itself a necessary and sufficient condition for the proper use of information and utilization of information technology. As Shearer relates "...the oil producing nation's wealth can be used to amass the expertise to buy

modern library building collections, hardware, and staff services. That expertise can appropriately organize these building blocks into suitable systems and networks. The more difficult task is to assure that these systems become more than ornaments."² Only a competent information manpower could assure that this does not occur.

Consequently, in allocating their resources developing countries should direct their attention to library and information science education to enhance the information manpower of their nation.

Shortcomings in the Educational Programs of Information Manpower

The following discussion is based on the assumption that the education of the information manpower in developing countries is promoted through library and information science schools.³ One has to recognize here that progress has been achieved in various aspects of education of information professionals. For example, several schools have instituted post-graduate studies and countries such as Brazil (4), (16), Morocco (3), (12), and Nigeria (2) have established special programs in information science. Moreover UNESCO (6), the British Council (9) as well as other international organizations (8) have continuously supported educational programs, conferences, and meetings for the information manpower of developing countries.

Despite these achievements, there are still a significant number of factors responsible for the shortcomings in the educational programs for the information manpower. These factors fall into two categories. The first category includes those factors stemming from the system of education proper; the second category, those inherent in the educational programs of library and information science schools. Three major factors have been identified with respect to the first category. They are discussed in the following section of the paper.

1. The Organizational Structure of Library and Information Science Schools

Most library and information science schools are still housed within a humanities department in the university. For example, library schools in Ethiopia, Egypt, Sudan, Saudi Arabi are under the department of arts; while those in Zambia and Nigeria are under the department of education (1), (2), (20), (21). Within the academic structure, library schools are required to deal with several levels of authority within the university. This kind of structure does not promote innovations. On the contrary, it will tend to maintain the status quo. Therefore library school administrators will have to cope with a very complex bureaucracy whenever they wish to promote changes such as the introduction of information science courses in the curriculum of their schools. This situation explains the long delays in time (as well as frustration) for those responsible for implementing new programs.

Another disadvantage of this organizational structure concerns students enrolled in library and information science programs having to take a significant number of courses from the curriculum offered by the departments of arts or education. Literature, history and education are the primary areas in the curriculum of these departments. In discussing the status of librarianship in Francophone West Africa, Aguolu⁽³⁾ wonders why there is such a concentration upon historical courses.

2. Well Defined Lines of Disciplines

The above situation is further aggravated by the fact that in most developing countries the lines of disciplines are clearly distinguished. For example, students enrolled in schools of engineering are required to take all their courses from the engineering curriculum following the same sequence. Electives are not permitted. This system poses a serious problem^{for} information manpower education. Since students are not allowed to "cross" lines of disciplines. They can not complement their education by taking courses in other schools, such as the design of information systems analysis from the engineering or management school.

Thus, the interdisciplinary approach, so vital to the education of the information manpower, is never realized under these circumstances. This is particularly serious for the training and education of master or doctoral students who will become the educators of the future.

3. Scattering of the Information Curriculum

The emphasis on information technologies and design of information systems have led several departments in the universities to offer courses in information science. As a result, the information science curriculum may be found scattered in the schools of engineering, computer science, management or even occurring in outside institutions unrelated to the formal education system. This approach may have the advantage to bring to these courses the orientation and methodologies of the science disciplines. However, there has been very little attempt til now to integrate such information science courses within library and information science schools.

Factors Inherent in the Library and Information Science Education

Shortcomings in the education of the information manpower are also due to factors inherent in the library and information science education. These are:

1. Shortage of Qualified Faculty

A survey of the literature reveals that most schools in developing countries face a shortage of enough qualified teachers. This shortage is in particular acute in the area of information science. However, there is also a shortage of teachers in the area of traditional librarianship. The educational programs of most schools, therefore, rely heavily on part-time teachers coming from libraries, archives or documentation centers. According to Dean,⁴ reliance on part-time teachers does not provide continuity in professional programs or the kind of commitment to teaching or research as with full-time teachers. However, an

advantage of part-time teaching is that it enables students and faculty to keep in touch with the developments in the field.

2. Methods of Teaching

In most developing countries, there are few books translated in the mother tongue, especially in information science. Students have to rely heavily on their class notes or a single text book (20). Outside readings are rarely assigned or even encouraged. This situation is particularly serious in the Arab countries because very few books have been translated in Arabic. There is a paradox here in that those students who will become the information professionals are not, during the course of their education, exposed to the information resources of libraries or information centers.

3. Problem of Language Proficiency

The problem of language proficiency is just an extension of the above situation. In many developing countries the library collections are in Western languages, and students can not read English or French. For example, Tashkandy reports that three fourths of University library books in Saudi Arabia are obtained from Europe and the U.S. Only 20% are obtained from Arab publishers. According to Shearer, "...Zehery holds that training for library and information professionals in the Arab World must be predicated upon proficiency in English."⁵

4. Absence of Systems Approach Methodology

The development of analytical skills should have the highest priority in any educational program. Unfortunately, courses concerned with the systems approach methodology, such as systems analysis, are absent from the curriculum of library and information science schools in developing countries. Students should be able to define a problem objectively, seek alternative solutions and evaluate them according to certain criteria (cost/benefit analysis) in order to recommend a solution. Foskett regards the system approach "as one of the most fruitful areas for change and development ranging as it does from the philosophy of science to the management of all types of institutions."⁶ Ademehi⁷ states that librarians should

be trained in operation research. The same idea is expressed by Harvard Williams concerning the education of archivists when he states that archivists "need to approach their archival studies in terms of problem solving rather than in terms of sets of solutions to set of problems."⁸

In addition to the factors discussed above, the absence of laboratories and technical facilities also has a large effect on information manpower education in developing countries. The lack of facilities prevents students from getting first hand experience to develop skills in online searching or test computer programs on microcomputers.

Recommendations

From this paper, one might have given ^{the} readers the impression that training of information specialists in developing countries would remain inadequate unless drastic changes are made in the educational environment. The purpose of this section is to demonstrate that the education of information professionals could easily be improved and upgraded if the following recommendations are implemented. They all incorporate a built-in mechanism that promotes individual incentives and private benefits in order to convey the maximum social benefits to developing countries.

1. Faculty members from other schools; namely engineering, management, and computer sciences should be invited to teach courses in the library and information science schools. They should be asked to develop courses at the doctoral level since Ph.D. students will become the teachers of the future.
2. Library and information science schools should have faculty members with diverse backgrounds. Although this might create a "distabilizing" factor at the beginning, but in the long run this practice would promote the interdisciplinary approach to the field and help establish the lines of communication between the different schools.
3. Teaching loads should be reduced to allow faculty members to translate textbooks written in Western languages in their mother tongue. This translation activity should become part of their course prep-

3. (continued)

aration (if they wish to do so). In the long run a collection of textbooks in Arabic or Hindu will be built.

4. Students should be required as part of their study to write a research paper in a language other than their mother tongue. Tutoring and special help should be given to them through an arrangement with the English or French department.
5. The system approach methodology should be incorporated in the already established courses. Students should be asked to use this methodology in their field work. Information science curriculum could be introduced in a similar manner.
6. Library and information science schools should establish joint programs with other schools. This might attract students with science backgrounds to the profession.
7. Faculty members of developing countries should establish a network among themselves whereby lecture notes, teaching materials, syllabi, teaching experience, etc. are exchanged. This mechanism will help them benefit from each others experience and to keep abreast of the latest development in the field.
8. In the long run, library and information science schools should become independent of other university departments. This is quite possible as information is regarded more and more as a scarce and important resource.

Summary

The main objective of this paper was to focus the attention of developing countries on the importance of developing their information manpower. Investment in physical and technical resources does not solely constitute a necessary and sufficient condition to promote the proper utilization of information services technologies. Only a competent and efficient information manpower could accomplish this by acting as the interface between the information resources and the users and by promoting the demand for information services. Whereas the development of the information infrastructure needs the presence of an information manpower with diverse background, the education system of most developing countries

train the information specialists in a similar manner. As a result, developing countries will always depend on "foreign" experts.

To remedy the shortcomings in the education and training of information specialists, several recommendations were made. They were all based on the assumption of promoting the individual incentive in order to convey the most social benefit. These recommendations are simple to implement and will not withdraw funds from any other projects or programs.

Footnotes

¹Saracevic, T. (19) p. 174

²Shearer, K. (22) p. 260

³Other names may also be used such as the School of Information Studies or School of Library and Information Studies.

⁴in Agulou, C. (3) p. 20

⁵in Shearer, K. (22) p. 266

⁶Foskett, D. (7) p. 25

⁷in Ballard, R. (5) p. 68

⁸Harvard-Williams, P. (10) p. 201

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